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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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DEC - 4 1998

In the Matter of )  
Revision of the Commission's Rules )  
To Ensure Compatibility with )  
Enhanced 911 Emergency )  
Calling Systems )

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

CC Docket No. 94-102

To: Chief, Wireless Telecommunications Bureau

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REQUEST FOR RULE WAIVER

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Public Service Cellular, Inc. ("PSCI"), by its attorneys, pursuant to the FCC's Order in the above-referenced proceeding released on November 13, 1998,<sup>1</sup> hereby files its request for waiver ("Waiver") of Section 20.18 of the Commission's Rules. In the Order, the FCC extends forbearance of enforcement of Section 20.18 until December 31, 1998, and requires entities that will be non-compliant as of that date to file requests for waiver by December 4, 1998. PSCI will be non-compliant with Section 20.18 upon its enforcement due to the unavailability of compliant equipment from PSCI's equipment vendor. Accordingly, PSCI respectfully requests a waiver of Section 20.18 until compliant equipment is commercially available.

PSCI provides analog and digital wireless service in portions of the Columbus, Georgia/Alabama MSA, Market No. 153B, CRS Station KNKA415; Georgia RSA 6 - Spalding,

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<sup>1</sup>In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Order, rel. Nov. 13, 1998 ("Order").

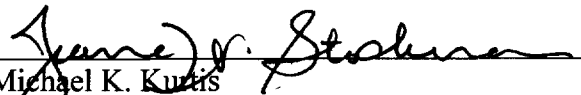
Market No. 376B(3), CRS Station KNKN883; and Georgia RSA 9 - Marion, Market No. 379B(1), CRS Station KNKN976. PSCI greatly desires to comply with the requirements of Section 20.18 and to provide hearing-impaired persons with TTY access to E911 services over its digital wireless network. As the FCC is aware, compliant equipment is not commercially available from PSCI's equipment vendor to permit PSCI to offer TTY access to E911 services over its digital wireless network. Thus, this is not a situation where compliance is unduly burdensome for PSCI, rather, it is impossible for PSCI to comply with this rule section because there is not compliant equipment available. Because it is impossible for PSCI to comply with the upcoming December 31, 1998 deadline, PSCI respectfully requests a waiver of that deadline.

The Order sets forth specific questions that should be answered in support of waivers of the December 31, 1998 deadline. PSCI submits that these questions relate to the specifications of the equipment that is being developed to provide TTY compatible service, and as such are beyond the scope of information which PSCI can provide. Therefore, such questions are more appropriately addressed by PSCI's equipment vendor because the equipment vendor, and not PSCI, is directly involved in developing compliant equipment. To form the basis of its Waiver, PSCI requested that its equipment vendor provide responses to all information set forth in the Order in sufficient time to meet the December 4, 1998 waiver deadline. This request and the equipment vendor's response thereto is attached as Exhibit A. Based on the information set forth in Exhibit A, PSCI respectfully requests a waiver of Section 20.18 of the Commission's rules until such time as compliant equipment is available from its equipment vendor. In accordance with the terms of the Order, on a quarterly basis PSCI will request updated information from its equipment vendor regarding its progress on developing compliant equipment and submit such updates to extend this waiver request.

As soon as equipment is commercially available from its equipment vendor, PSCI intends to comply with Section 20.18 of the Commission's rules.

Respectfully Submitted,

PUBLIC SERVICE CELLULAR, INC.

  
Michael K. Kurtis  
Jeanne W. Stockman  
Its Attorneys

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Dated: December 4, 1998

## EXHIBIT A



**Don E. Bond**  
President

**December 3, 1998**

**Ms. Vickie L. Sykes**  
**Lucent Technologies, Inc.**  
**Network Systems**  
**280 Weeping Willow Way**  
**Tyrone, GA 30290**

**Re: Compliance with FCC Requirements to Provide 911 TTY Access  
Over Digital Networks**

**Dear Ms. Sykes:**

As you are aware Public Service Cellular, Inc. currently utilizes your Company's IS-136 and CDMA infrastructure equipment to provide digital cellular and PCS service throughout its licensed service areas.

Section 20.18 of the FCC rules requires non-discriminatory access to state and local government services such as 911 for people with speech or hearing disabilities. Specifically, the Commission's rules require that all licensees provide TTY access to 911 services over cellular, PCS and certain SMR networks. Until now, the FCC has not enforced this requirement with respect to carriers operating in the digital format. We understand that this forbearance has been based upon the recognition by the FCC that none of the current digital protocols (TDMA, CDMA, iDEN or GSM) are capable of passing TTY data with an acceptable error rate.

The FCC has recently extended the period for which it will forbear from enforcing the requirements of Section 20.18 against digital carriers to December 31, 1998. Non-compliant licensees must seek a waiver of this deadline by December 4, 1998.<sup>1</sup>

<sup>1</sup>In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Order, rel. Nov. 13, 1998.

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Notwithstanding the FCC's decision to allow further extensions of the forbearance period on a carrier-by-carrier basis, Public Service Cellular, Inc. wishes to proceed with the deployment of the necessary system modifications to enable full compliance with the requirements of Section 20.18 as quickly as possible. We therefore ask that you provide us with a projected timetable of the availability of the requisite infrastructure equipment to enable the system which we presently have operating to be fully compliant. In addition, we ask that you provide us with a formal quote for that upgrade as soon as it is completed any requisite FCC type acceptance procedures and becomes commercially available. In addition, we ask that you provide us with the names of any alternate system suppliers which might provide this functionality on an ancillary basis, with equipment that is capable of interfacing with the infrastructure equipment which you have provided.

Until such time as you can provide us with the requisite infrastructure upgrades to enable us to fully comply with the requirements of Section 20.18, we must seek a formal waiver of that rule from the FCC. This waiver must be filed by December 4, 1998.

In support of that waiver, the FCC is requiring certain technical information to be included in the waiver in order for it to receive favorable consideration. However, most of the information sought by the FCC appears to pertain to equipment vendors' ability to supply digital wireless licensees with compliant equipment. Accordingly, in addition to the information requested above, we ask that you provide us with specific responses to the items presented below. Public Service Cellular, Inc. intends to submit a copy of your response to the FCC in support of Public Service Cellular, Inc.'s request for waiver on December 4, 1998. Therefore, if any of the information which you provide in response to any item set forth below is confidential and therefore subject to the non-disclosure provisions of our Supply Agreement, we ask that you submit a formal answer to each item with such specificity which you would allow to be disclosed publicly to the FCC and provide a detailed response (stamped as confidential) as an attachment to your written response to this letter. Because of the FCC's December 4, 1998 deadline for carriers to seek waivers, we must ask that your written response to this letter be forwarded in sufficient time to ensure its receipt by Public Service Cellular, Inc. as soon as possible.

Questions:

- A. Is the infrastructure equipment which you provided to Public Service Cellular, Inc. and Public Service Cellular, Inc. is presently operating, capable in its current form or with presently commercially available upgrades, of providing full support and access to TTY devices to ensure reliable access to 911 services by persons utilizing such TTY devices sufficient to enable

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Public Service Cellular, Inc. to fully comply with the requirements of Section 20.18 of the FCC's rules? If so, please provide a formal quote and pricing information in accordance with the terms and conditions of our Equipment Supply Agreement. If not, please provide answers to the remaining questions.

- B. What steps is Lucent Technologies, Inc. taking or intending to take to provide carriers utilizing its infrastructure equipment with the ability to provide users of TTY devices with the capability to operate such devices in conjunction with digital wireless systems in compliance with Section 20.18 of the rules?
- C. When do you intend to make this capability available to your infrastructure users to enable them to provide full Section 20.18 compliant service to TTY users? This information should include well-documented timetables and milestones regarding the implementation of this capability.
- D. What reasonable steps are you taking to address the consumer concerns listed below? Where the requested capability is network independent, i.e., your infrastructure equipment could provide that capability now to a common TTY device deployed within the past ten (10) years, please so indicate. Where the system cannot provide that capability to a properly functioning common TTY device deployed within the past ten (10) years, please indicate whether the item requested is technologically feasible with modification to the infrastructure equipment and, if so, an approximate time frame for implementation of that capability.

**Consumer Concerns:**

- 1. That the character error rate should approximate that of AMPS, which has been demonstrated at  $\leq 1\%$  for stationary calls.
- 2. That the TTY caller be able to visually monitor all aspects of call progress provided to voice users. Specifically, the ability to pass through sounds on the line to the TTY (so that the user can monitor ring, busy, answered-in-voice, etc.) should be provided.
- 3. That there be a visual indication when the call has been disconnected.

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4. That volume control capability should be provided.
5. That the TTY user must have a means of tactile (vibrating) ring signal indication.
6. That the caller must be able to transmit TTY tones independent of the condition of the receiving modem. (This is to permit baudot signaling by pressing a key, to let a hearing person know that the incoming call is from a TTY).
7. That the *landline* party's TTY must not require retrofitting in order to achieve the desired error rate.
8. That the *wireless* party's TTY may require retrofitting, or a new model TTY to be developed, or the use of a portable data terminal such as a personal digital assistant.
9. That VCO and HCO should be supported where possible.
10. That reduction of throughput (partial rate) on Baudot is highly undesirable and should not be relied upon to achieve compliance (See #7). It may be useful as a user-selectable option to improve accuracy on a given call.
11. That call information such as ANI and ALI, where provided in wireless voice, should also be provided for TTY calls.
12. That the solution need not support seldom little-used or obsolete TTY models, but in general should support the embedded base of TTY's sold over the past ten years. The landline equipment supported must not be limited to that used in Public Service Answering Points (911 centers).
13. That drive conditions must be supported, again using AMPS as a benchmark.

It is Public Service Cellular, Inc.'s understanding that each and every consumer item addressed above is available today in an AMPS environment. If you have responded that any of the items identified above are not technically feasible with the digital protocol which Public Service Cellular, Inc. has deployed with your infrastructure equipment, please provide sufficient technical detail to enable Public Service Cellular, Inc. to



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properly explain that limitation to the FCC. Also, please identify whether that limitation is inherent to your company's infrastructure equipment or an inherent limitation in the digital protocol.

Assuming that the FCC grants the initial waiver of the December 31, 1998 deadline for a digital carrier to comply with the requirements of Section 20.18, the FCC has indicated that it will require licensees to provide updates every three (3) months on the items set forth above in order for waivers request to remain in effect. These updates are to state the progress that has been or is being made toward implementation of TTY/digital capability. Therefore, we ask that you provide us with updates with respect to each of the items discussed above as soon as such information becomes available, but no less frequently than quarterly by the last business day of February, May, August and November.

Should you have any questions with respect to this matter, please do not hesitate to contact me. In light of the extremely short time frame which the FCC has allowed for Public Service Cellular, Inc. to seek a waiver, your prompt attention to this matter would be sincerely appreciated.

Very truly yours,



Don E. Bond  
President

DEB/wq

To: Mr. Don Bond  
President  
Public Service Cellular  
912-847-4117-voice  
912-847-2010-fax

From: Vickie Sykes  
Lucent Account Manager  
770-631-7701

December 4, 1998

Don,

Please find attached a letter that was sent to me to forward to you addressing your concerns about E911 compliance. I hope this letter will be sufficient for you to file for your waiver. I am still trying to get answers to your concerns that you listed in your letter to me. I will forward them as soon as I receive the information. Thanks as always for your business.

Sincerely,

Vickie L. Sykes  
770-631-7701  
770-631-0298 (fax)

This letter is in response to your request for information in a letter dated December 3, 1998 regarding Text Telephone Devices (TTY) compatibility in the Lucent wireless infrastructure. Lucent has actively participated in industry and consumer forums focusing on the compatibility of Text Telephone Device (TTY) signals and digital wireless systems and has developed promising strategies to solve this difficult problem. Lucent also has closely followed the Federal Communications Commission's (FCC) activities regarding this proceeding and is aware that you must file a waiver request with the FCC by December 4, 1998 if your digital systems cannot transmit 911 TTY signaling. Lucent strives to cooperate fully with its customers, so I have attempted to provide as much substantive detail as possible regarding your inquiries in developing a digital TTY solution. This information should enable you to respond to the FCC.

Lucent undertook a joint study in order to examine a number of different in-band alternatives that would permit adequate transmission of TTY/TDD signals over digital wireless voice channels using test criteria in parity with analog cellular services. It was assumed that suitable means for providing a connection between the mobile device and the TTY terminal would be available. As a result of the study and further lab work the receiver/repeater solution was identified as viable for overcoming the inherent Frame Error Rate (FER) in CDMA. The proposed solution is that the receiver/repeater solution would be implemented on both links, i.e., in the terminal for the forward link and on PHV-3/4s in the infrastructure reverse links. The advantages of this approach include:

- minimal system impact,
- no need for additional/special terminals or equipment (other than minor modifications to the vocoder firmware and the physical connection to the phone mentioned earlier - all solutions require that)
- no standards impact, and
- the ability to terminate TTY/TDD calls transparently, even when made in-band from a land-based TTY device to the mobile.

In November 1998 Lucent presented the results of the receiver-repeater simulation to the Telecommunications Industry Association (TIA) and CDMA Development Group (CDG) where the findings were received with great interest. The contribution has since been forwarded to the Cellular Telecommunications Industry Association (CTIA) TTY Forum for consideration.

In order to provide an end-to-end solution to a customer, a mobile manufacturer partner is needed that would agree to implement the receiver/repeater on a terminal. Dialogue with a number of other mobile manufacturers has been initiated, and the response so far has been positive. One vendor in particular is very interested in pursuing a field trial that would make use of their fully programmable phones. Since that phone uses the same Digital Signal Processor (DSP) platform for the vocoder as Lucent's PHV-3/4 product, there will be a lot of opportunity for synergistic development of the code to support the trial. For this to happen Lucent plans to do the following:

1. Lucent to complete the end-to-end simulation to further verify results - end of 1998
2. Lucent to implement the simulation (currently written in Matlab and C) in DSP assembler - 6/99
3. Lucent and mobile vendor arrive at a business agreement for the collaboration - (Dialogue initiated)
4. A date for a complete solution to be available to a carrier is dependent upon # 3 above. Assuming mobile vendor alignment falls in place in the next three months, a Lucent infrastructure receiver/repeater solution is conceivable in the 1999 time frame.

Dialogue on item 3 with internal Lucent Organizations that negotiate external business agreements has been initiated. A firm date for a final business agreement cannot be stipulated at this time.

Until recently, a TTY data solution was not acceptable to the deaf and hard of hearing stakeholders participating in the CTIA TTY Forum. Now that a data solution is being considered, Lucent

is following that activity in the CDG and CTIA. Preliminary investigation of this solution has not identified any development in Lucent infrastructure products. However, the TTY signaling (i.e., V.18) requirements specified in the IS-707 data standards need to be added to the Interworking Function (IWF) provided by 3<sup>rd</sup> party vendors. The dates for a TTY data solution are dependent on IWF vendors.

In the future, we will provide updated information regarding our progress in this matter at least every 3 months. If you have additional questions, please feel free to contact Lucent's regulatory attorney, Diane Law Hsu, at (202) 756-7092. She is coordinating customer requests for support regarding 911 TTY digital wireless compatibility.